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PTO/SB/08A (10-96)

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known	
				Application Number	
				Filing Date	
				First Named Inventor	Farrant et al.
				Group Art Unit	
Examiner Name					
Attorney Docket Number	22.1458				
Sheet	1	of	5		

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ²			
SS	1	3,181,463		Morgan et al.	3/17/61	
	2	3,327,791		Harrigan, Jr.	12/22/64	
	3	3,366,055		Hollander, Jr.	11/15/66	
	4	3,517,758		Schuster	9/23/68	
	5	3,640,224		Petrick et al.	2/8/72	
	6	3,640,225		Carlson et al.	2/8/72	
	7	3,978,791		Lenley et al.	9/1/76	
	8	4,137,850		Donner	2/6/79	
	9	4,307,663		Stonestrom	12/29/81	
	10	4,393,779		Brede et al.	7/19/83	
	11	4,421,030		DeKoker	12/20/83	
	12	4,422,381		Barrett	12/27/83	
	13	4,441,427		Barrett	4/10/84	
	14	4,471,697		McCormick et al.	9/18/84	
	15	4,517,497		Malone	5/14/85	
	16	4,527,636		Bordon	7/9/85	
	17	4,592,280		Shores	6/3/86	
	18	4,602,565		MacDonald et al.	7/29/86	
	19	4,632,034		Colie, Jr.	12/30/86	
	20	4,638,712		Chawla et al.	1/27/87	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Office ³	Number ⁴	Kind Code ⁵				
SS	21		WO 96/23195		Shann	8/1/96		
	22		WO 98/38470		Rospek	9/3/98		
	23		EP 0 029 671		Stonestrom	9/21/83		
	24		EP 0 601 880 A2		Barker et al.	6/15/94		
	25		EP 0 604 694 A1		Cabezas et al.	7/6/94		
	26		GB 693,164		Gulf Research & Development	6/24/53		
	27		GB 677,824		Schlumberger	8/20/52		
	28		GB 2,100,395 B		Coley et al.	8/1/84		
	29		GB 2,118,282 A		Barrett	10/26/83		

Examiner Signature	Suvil Singh	Date Considered	4/11/05
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Sheet	2	of	5			

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		Number	Kind Code ²			
SS	30	4,662,281		Wilhelm et al.	5/5/87	
	31	4,700,629	A	Benson et al.	10/20/87	
	32	4,708,060		Bickes, Jr. et al.	11/24/87	
	33	4,729,315		Proffit et al.	3/8/88	
	34	4,735,145		Johnson et al.	4/5/88	
	35	4,762,067		Barker et al.	8/9/88	
	36	4,777,878		Johnson et al.	10/18/88	
	37	4,788,913		Stroud et al.	12/6/88	
	38	4,831,933		Nerheim et al.	5/23/89	
	39	4,843,964		Bickes, Jr. et al.	7/4/89	
	40	4,886,126		Yates, Jr.	12/12/89	
	41	4,944,225		Barker	7/31/90	
	42	5,088,413		Huber et al.	2/18/92	
	43	5,094,166		Hendley, Jr.	3/10/92	
	44	5,094,167		Hendley, Jr.	3/10/92	
	45	5,172,717		Boyle et al.	12/22/92	
	46	5,347,929		Lerche et al.	9/20/94	
	47	5,413,045		Miszewski	5/9/95	
	48	5,505,134		Brooks et al.	4/9/96	
	49	5,520,114		Guimard et al.	5/28/96	
	50	5,539,636		Marsh et al.	7/23/96	

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		Office ³	Number ⁴	Kind Code ⁵				
SS	51		GB 2,190,730 A		Patz et al.	11/25/87		
	52		GB 2,226,872 A		Yates	7/11/90		
	53		GB 2,265,209 A		Hackney et al.	9/22/93		
	54		GB 2,290,855 A		Ellis	1/10/96		

Examiner Signature	<i>Sanil Singhal</i>	Date Considered	<i>4/11/95</i>
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Sheet	3	of	5	Attorney Docket Number	22.1458

U.S. PATENT DOCUMENTS

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Examiner Signature	Sunil Singh	Date Considered	4/11/00
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				Examiner Name	
				Attorney Docket Number	22.1458
Sheet	4	of	5		
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
SS	57	"Performance Criteria for Small Slapper Detonators" Controller, Her Majesty's Stationery Office, London 1984			
	58	"New Developments in the Field of Firing Techniques" by K. Ziegler Propellants, Explosives, Pyrotechnics 12, 115-120 (1987)			
	59	"Application of Slapper Detonator Technology to the Design of Special Detonation Systems," by W. H. Meyers Proc. 12 th Symposium on Explosives and Pyrotechnics, San Diego, California, March 13-15, 1984, Detonation Systems Development, Los Alamos National Laboratory, pp. 4-5 through 4-19.			
	60	"CP DDT Detonators: II. Output Characterization," by M. L. Lieberman Sandia National Laboratories Report SAND 83-1893, Albuquerque, New Mexico, pp. 3-105 through 3-112.			
	61	"A Fast, Low Resistance Switch for Small Slapper Detonators," by D. D. Richardson and D. A. Jones Department of Defense Materials Research Laboratories Report MRL-R-1030, Victoria, Australia.			
	62	"The Effect of Switch Resistance on the Ringdown of a Slapper Detonator Fireset," by D. D. Richardson Department of Defense Materials Research Laboratories Report MRL-R-1004, Victoria, Australia.			
	63	"Flyer Plate Motion and Its Deformation During Flight," by H. S. Yadav and N. K. Gupta Int. J. Impact Engng, Vol. 7, No. 1, 1988, pp. 71-83.			
	64	"Mossbauer Study of Shock-Induced Effects in the Ordered Alloy Fe ₅₀ Ni ₅₀ in Meteorites," By R. B. Scorzelli, I. S. Azevedo, J. Danon and Marc A. Meyers J. Phys. F: Met. Phys. 17 (1987), pp. 1993-1997.			
	65	"Effect of Shock-Stress Duration on the Residual Structure and Hardness of Nickel, Chromel, and Inconel," by L. E. Murr and Jong-Yuh Huang Materials Science and Engineering, 19 (1975), pp. 115-122.			
	66	"Critical Energy Criterion for the Shock Initiation of Explosives by Projectile Impact, by H. R. James Propellants, Explosives, Pyrotechnics 13, (1988), pp. 35-41.			
	67	"High-Temperature-Stable Detonators," by R. H. Dinegar Proc. 12 th Symposium on Explosives and Pyrotechnics, San Diego, California, March 13-15, 1984, Los Alamos National Laboratory, pp. 4-1 through 4-4.			
Examiner Signature	Sumil Singh			Date Considered	4/12/05

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Sheet		5	of	5	Attorney Docket Number
		22.1458			
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
SS	68	"Shock Initiation of PETN," by J. C. Cheng Monsanto Research Corporation, Miamisburg, Ohio, pp. 1-31 through 1-35.			
	69	"Exploding Metallic Foils for Slapper, Fuse, and Hot Plasma Applications: Computational Predictions, Experimental Observations," by I. R. Lindemuth, J. H. Brownell, A. E. Greene, G. H. Nickel, T. A. Oliphant and D. L. Weiss, Thermonuclear Applications Group, Applied Theoretical Physics Division, and W. F. Hensling and I. A. Garcia, Detonation Systems Group, Dynamic Testing Division, Los Alamos National Laboratory, Los Alamos, New Mexico, pp. 299-305.			
	70	"A New Kind of Detonator - The Slapper," by J. R. Stroud Lawrence Livermore Laboratory, University of California, Livermore, California, pp. 22-1 through 22-6.			
	71	"Pyrotechnic Ignition in Minislapper Devices," by D. Grief and D. Powell Awre, Aldermaston, Reading RG7 4PR, Berkshire, England, Controller, HMSO, London, 1981, pp. 43-1 through 43-10.			
	72	"Exploding Foils - The Production of Plane Shock Waves and the Acceleration of Thin Plates," by D. V. Keller & J. R. Penning, Jr. The Boeing Company, Seattle, Washington, pp. 263-277.			
	73	"Acceleration of Thin Plates by Exploding Foil Techniques," by A. H. Guenther, D. C. Wunsch and T. D. Soapes Pulse Power Laboratory, Physics Division, Research Directorate Air Force Special Weapons Center, Kirtland Air Force Base, New Mexico, pp. 279-298.			
	74	"A Low-Energy Flying Plate Detonator," by A. K. Jacobson Sandia National Laboratories Report, SAND 81-0487C, Albuquerque, New Mexico, 1981, pp. 49-1 through 49-20.			
	75	"Sequential Perforations in Boreholes," by H. Lechen ANTARES Datensysteme GmbH, January 1998.			
76	"A Simple Method for Estimating Well Productivity," by J. E. Brooks. SPE European Formation Damage Conference, The Hague, The Netherlands, 2-3 June, 1997.				
77	"Unique Features of SCBs," by P. D. Wilcox and "SCB Explosive Studies" by R. W. Bickes, Jr. Initiating and Pyrotechnic Components Division 2515				
Examiner Signature		Date Considered			
Sunil Singh		4/12/05			

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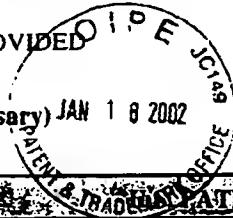
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FORM PTO-1449 (Modified)

LIST OF INFORMATION PROVIDED
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ATTY. DOCKET NO.
22.1458SERIAL NO.
09/997,021APPLICANT
Farrant, S. et alFILING DATE
November 28, 2001GROUP
3672

REFERENCE DESIGNATION PATENT DOCUMENTS

Examiner initial		Document No.	Date	Patentee
SS	AA	5,895,906	4/1999	Danielson et al
I	AB	6,008,735	12/1999	Chiloyan et al
I	AC	6,088,730	7/2000	Kato et al
I	AD	6,195,589	2/2001	Ketcham
	AE			
	AF			
	AG			
	AH			
	AI			

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FOREIGN PATENT DOCUMENTS

		Document No.	Date	Country	Translation	
					Yes	No
	AL					X
	AM					X
	AN					X
	AO					X

OTHER INFORMATION PROVIDED (AUTHOR, TITLE, DATE, PLACE OF PUBLICATION, PERTINENT PAGES, ETC.)

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Sunil Singh

DATE CONSIDERED

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